# Economic Analysis of Recreational Fishing at NOAA Fisheries

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2014 NMFS Recreational Fisheries Constituents' Economic Workshop
January 29-30, 2014
Silver Spring, MD

Workshop Objectives

• Provide an overview of the socio-economic program at NMFS with respect to recreational fishing to inform discussions over the next two days

• Discuss constituent perspectives and needs regarding socio-economic data and data collections

• Inform the April Recreational Fishing Summit discussions
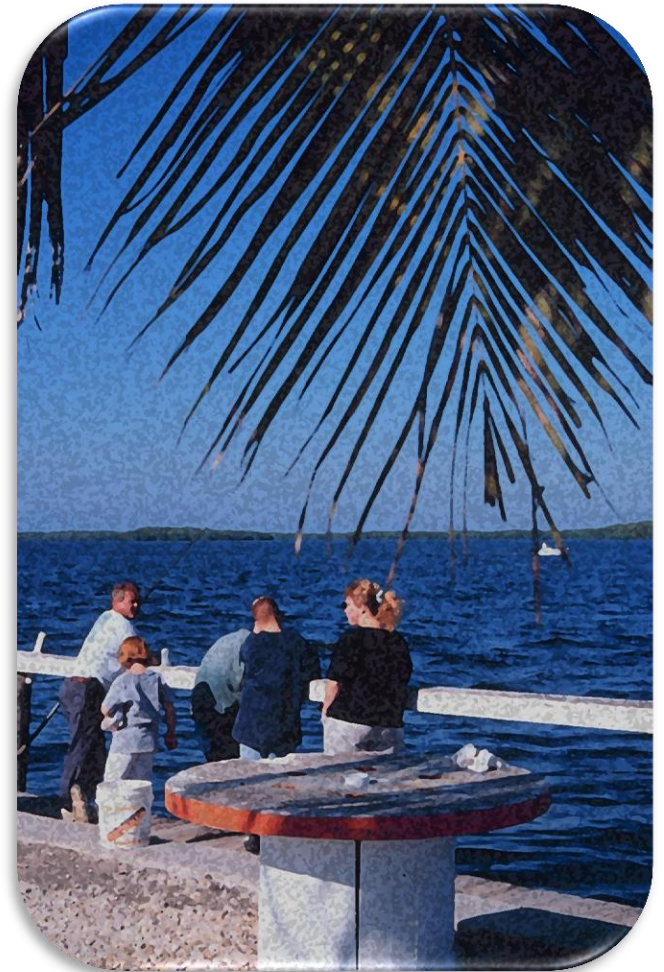
Outline of Presentation

- Recap of 2010 Summit Economic Goals

- Why NMFS collects economic data and overview of the types of data collections

- Accomplishments over past 4 years

- Current and upcoming data collections and modeling and research efforts

2010 Summit Economic Goals

Goal 3 – Improved social and economic data on recreational fisheries

- Objective 1: Review allocation process and goals and provide economic data suitable for managers to evaluate/make allocation and regulatory decisions.

- Objective 2: Understand the socio-economic impacts of Natural Disasters/Deepwater Horizon Oil Spill.

- Objective 3: Improve understanding of human dimensions of recreational fishing (e.g., angler satisfaction, motivations).

Objective 1: Provide economic data suitable for managers to evaluate/make allocation and regulatory decisions

- Address recreational concerns/comments on allocation (and other issues) in NOAA Catch Share policy, as appropriate.

- Implement the 2011 Marine Angler Expenditure Survey-- A nationwide survey of marine anglers in all coastal states to gather expenditures on trip-related costs and expenditures on durable fishing related goods.

- Work with the Office of Science and Technology; conduct a gap analysis of current social and economic programs.

- Coordinate with stakeholders, NOAA economists, Council, and Commission staff to inventory management need for social and economic data.

Objective 2: Understand the socio-economic impacts of Natural Disasters/Deepwater Horizon Oil Spill

- Work to ensure appropriate consideration of recreational fishing interests in relief/aid packages.

- Work with appropriate DOC/NOAA staff, fishery management councils, state agencies, academic institutions, and constituents to fully understand the socio-economic effects of the spill.

Objective 3: Improve understanding of human dimensions of recreational fishing

- Evaluate state of current knowledge of human dimensions of recreational fishing.

- Identify key needs and work with NOAA scientists, Council and Commission social scientists, and outside specialists in preparing a research agenda on human dimensions in marine recreational fishing.

Why collect economic data / conduct assessments?

- Legal mandates require economic assessments of proposed recreational fishing management actions (e.g., MSA/national standards, EO12866, RFA, NEPA)

- Provides decision-makers with information to make more informed decisions regarding fisheries management options

- Disaster assessments

"After closer investigation, it's become clear that we need to enter more than one value."

Economic data and research can address questions such as:

- What drives participation levels?

- What is the economic value of the fishery?

- What is the economic contribution of the fishery to coastal communities?

- How may regulatory actions impact consumers, anglers, commercial harvesters, for-hire operations, and seafood dealers/processors?

- How to incorporate ecosystem management into fishery management?

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Who can use economic data and analysis?

- Recreational fishing community

- Fisheries management councils (e.g., for potential use in council decisions)

- NMFS regional offices and science centers (e.g., in review of proposed regulations; research)

- Non-profit organizations (e.g. analyses of projects or programs)

- Academic research (e.g., for use in improving recreational fisheries economic models)

- Any organization with an interest in marine recreational fisheries

Types of NMFS Recreational Economic Surveys and Typical Data Collected

- Expenditure Surveys (trip and durable good expenditures)

- Cost-Earnings Surveys of For-Hire Industry (Revenues, costs and employment data)

- Economic Valuation Questions (characteristics of anglers and fishing trips)

- Stated Preference Surveys (Preferences over management options)

NMFS Recreational Economic Models

- Regional Economic Impact Models

- For-Hire Industry Models

- Revealed Preference Models

- Stated Preference Models

Regional Economic Impact Models

- Economic impact models rely upon angler expenditure data and for hire cost earnings data
- Illustrate how policy actions impact a region's economy in terms of:
  - Employment, income, value-added to GDP, sales and taxes
  - Shows distribution of impacts between industries, consumers, households, governments
- Provide an estimate of how angler expenditures contribute to a region's economy
  - For example, the number of jobs supported annually by angler expenditures on fishing trips
- Used to evaluate economic development opportunities
  - For example, what are the impacts of building a new fishing pier

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For Hire Models

- Provide estimates of revenues, costs, profits and employment in the for-hire sector

- Applications:

  - Estimates of the economic impacts of the sector to a regional economy (e.g., the number of jobs, level of sales)

  - Estimates of the changes in economic benefits accruing to the for-hire sector resulting from changes in management policies, natural disasters, or other environmental or economic factors.

  - Estimates of the sustainability of the for-hire sector in a given region

Revealed Preference Models

- Provide insights into recreational behavior and economic value of recreational trips
- Based on the assumption that the cost of a trip acts similar to a market price in sorting participation of recreationists
- Applications:
  - Fishery management policy analysis
    - e.g., effects on fishing effort from a change in bag limits
  - Project evaluation (e.g., benefits of dam removal)
  - Natural resource damage assessment (e.g., oil spills)
  - Ecosystem management (including non-fishery recreation)

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Stated Preference Models

- Based on surveys where individuals are asked to choose between a series of hypothentical alternative attributes related to a fishing resource.
- Models can estimate a value for the fishery resource under study.
- Typically used when there are no natural sources of variation in the attribute under study.
  - For example, the effect of proposed area closures on fishing effort
- Applications:
  - Benefit-cost analysis (e.g., estimated values for fish or angling trips)
  - Assessment of reactions to management and stock changes
  - Examination of species trade-offs
  - Evaluation of large-scale environmental issues or policies

Recapping…….

Accomplishments on 2010 Summit Economic Goals

- 2011 National Marine Recreational Fishing Expenditure Survey – Objective 1

- 2010 Internal data gap analysis - Objective 1

- 2011 NMFS Recreational Fisheries Data and Model Needs Workshop - Objective 1

- 2012 Assessment of Superstorm Sandy – Objective 2

- 2013 National Saltwater Angler Survey – Objective 3

Broader Accomplishments: Recent and Upcoming Data Collections

- National Bait and Tackle Shop Survey (2014)
- Marine Recreational Use Survey (2012)
- Expenditure Surveys
  - Nationwide Durable Goods Expenditure Survey (2014)
  - California Central Valley Angler Survey (2014)
  - California Groundfish Angler Survey (2014)
  - Cost-Earnings Surveys (Alaska, Northeast, Northwest, Pacific Islands, Southwest) (2011-2014)
- Revealed Preference
  - California Central Valley Angler Survey (2014)
- Stated Preference:
  - California Groundfish Angler Survey (2014)
  - Gulf of Mexico Angler Survey (2013/14)
  - Massachusetts Angler Valuation Survey (2012)
  - Alaska Saltwater Sportfishing Survey (2012)

Questions and Comments